



Michigan State University Lead Management Program

**Requirements for
Managing Projects That Involve
Lead-Containing Materials**

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Office of Environmental Health and Safety
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1.0 INTRODUCTION

This document is the official MSU position on procedures and operations involving the disturbance of lead-containing materials at MSU by employees or outside contractors. This document was developed to ensure University compliance with Occupational Safety and Health Administration (OSHA), Environmental Protection Agency (EPA) and the office of Housing and Urban Development (HUD) Standards.

2.0 PURPOSE

The purpose of the Lead Management Program is to prevent lead exposure of all workers, regardless of job title and to help prevent the potential for building contamination from lead during demolition, maintenance, and renovation activities in Michigan State University owned structures. The requirements in this Program set standards for work that disturbs lead-containing materials. Contractors engaged in such projects are expected to possess the managerial expertise, experience and to employ workers with skill, training, and experience so that the work is carried out in compliance with these requirements.

3.0 DEFINITIONS

Action Level (AL) – Employee exposure, without regard to the use of respirators, to an airborne concentration of lead of 30 micrograms per cubic meter of air (30ug/m³) calculated as an 8-hour time-weighted average.

Child Occupied Facility – a building or portion of a building constructed before 1978 that is visited regularly by a child who is 6 years of age or less, on at least 2 different days within a given week, if each day's visit is at least 3 hours and the combined weekly visit is at least 6 hours in length, and the combined annual visits are at least 60 hours in length. Child occupied facility includes but is not limited to a day-care center, a preschool, and a kindergarten classroom.

Contractor Employer Program - In accordance with the Hazard Communication Standard, each outside contractor working on an MSU owned property (on-site) is responsible for developing, implementing, and informing other on-site employers of all hazard communication related information. Under the Program, each outside employer must provide MSU, and other employer(s) working on-site, with unrestricted, on-site access to material safety data sheets (MSDSs) for all hazardous materials used, handled or stored on-site to which an employee may potentially be exposed to during their normal course of work.

Hazardous Waste – Generation and disposal of hazardous waste is regulated under the Resource Conservation and Recovery Act (RCRA). If a waste exhibits toxicity, corrosivity, ignitability, or reactivity characteristics it is considered hazardous.

HEPA – A HEPA filter is one that is capable of filtering 99.97% of all airborne particles at 0.3 micrometers (μm) in diameter.

HEPA Vacuum Cleaner - An electrical device that cleans surfaces by suction and discharges transport air through a HEPA filter.

Lead Containing Material (LCM) – Any material that has been confirmed, through laboratory analysis to contain any detectable quantity of lead.

Permissible Exposure Limit (PEL) - No employee shall be exposed to lead at concentrations greater than fifty micrograms per cubic meter of air ($50 \mu\text{g}/\text{m}^3$) averaged over an 8-hour period or for a total of $400 \mu\text{g}/\text{m}^3$ in any work day.

Presumed Lead Containing Material (PLCM) – Any material that is presumed to contain any quantity of lead.

Representative Sample – Sample that accurately captures a particular material or area based on the typical characteristic of that material or area.

Substrate – The underlying material a building component is made from, over which is often applied a surface finish such as paint. Common substrates include, plaster, concrete, wood, metal, and gypsum.

Target Housing – Any housing constructed before 1978, except any of the following:
(a) Housing for the elderly or persons with disabilities, unless any 1 or more children age 6 years or less resides or is expected to reside in that housing.
(b) A 0-bedroom dwelling.
(c) An unoccupied dwelling unit pending demolition, provided the dwelling unit remains unoccupied until demolition.

Toxicity Characteristic Leachate Procedure (TCLP) - Test conducted to determine if a substance is a hazardous waste. The hazardous waste limit for lead is 5 parts per million (ppm). This limit applies only to waste determination.

4.0 DUTIES AND RESPONSIBILITIES

The Office of Environmental Health and Safety (EHS) shall:

1. Provide technical guidance to University personnel concerning lead hazard evaluation and control.
2. Review results of area air monitoring and clearance dust wipe sampling and provide interpretation for departments managing work.

3. Direct the University Departments conducting the work to modify or stop lead related work practices if employees, students, or the public are being exposed to lead hazards.
4. Maintain records of all sampling data submitted to EHS.
5. Communicate requirement of Lead Management Program.
6. Periodically review the Lead Management Program and revise as necessary.
7. Review for approval Statement of Qualifications for outside Lead Abatement contractors or consultants.
8. Provide Lead Training in accordance with 29 CFR 1926.62 (L)(2) for University Employees anticipated to have occupational lead exposure.
9. Develop and maintain a database of known lead containing materials in campus buildings, based on information provided by Departments conducting lead sampling.
10. Evaluate and approve acceptable lead management plan variance requests.

The MSU Physical Plant Representatives Managing Lead Work shall:

1. Disclose known information regarding the presence of lead in building and construction materials to any contractor retained to conduct demolition or renovation work at MSU.
2. Contact EHS a minimum of 15 working days in advance of upcoming projects that may impact coated surfaces that may contain lead.
3. Ensure that the Contractor has read, understands, and will abide by the minimum performance standards required in this Program for controlling lead hazards.
4. Report any problems associated with implementation of the Lead Management Program to EHS.
5. Provide EHS with a Statement of Qualifications of the Contractor scheduled to conduct the area air sampling, 15 working days prior to the intended start date, for review and approval.
6. Stop or modify lead related work practices if employees, students, or the public are being exposed to lead hazards.

7. Conduct area air monitoring and clearance sampling by approved consultant as required by this program and provide EHS with all sample results.
8. Ensure all lead related work-sites and all areas that have been contaminated resulting from the work conducted are properly cleaned and meet the clearance criteria required by this Program.
9. Ensure all hazardous waste is properly identified, labeled, segregated and stored at the job-site until removed by ORCBS or approved contractor.
10. Provide specific contractor language regarding projects that may contain lead to outside contractors bidding on projects.
11. Submit a variance request to the EHS office in writing for work practices, notification times, or other deviations from the lead management plan. Variances are at the discretion of EHS.

5.0 LEAD IDENTIFICATION

Because of its physical properties, lead has been widely used as an additive to many building materials. Although lead has been banned from use on potable water supplies and residential paint, it may still be present in older buildings. Some lead containing building materials continue to be used to this day. The following materials should be presumed to contain lead unless manufacturer information, MSDS, or testing proves otherwise.

Presumed Lead Containing Materials (PLCM):

- Interior and exterior paint
- Steel and iron primer
- Industrial paint
- Industrial electrical jacketing
- Roof flashing
- Tank linings
- Soft solder
- Glazed Ceramics
- Sheeting, blocks, and bricks in floors and walls for x-ray penetration protection

The OSHA Lead Standard applies to any detectable concentration of lead in a material. The presence of any lead in a material triggers the worker protection and work practice requirements of this program.

The department managing the work shall conduct lead identification sampling to determine if a presumed lead containing material contains lead and requires lead management. The only methods recognized are bulk sampling for laboratory analysis.

Sampling may only be conducted by a qualified MSU employee or an approved consulting firm. See Appendix 3 for a list of approved consulting firms.

6.0 LEAD EXPOSURE

According to the Occupational Safety and Health Association (OSHA), any lead containing material has the potential to create an airborne exposure to lead. Contractors that disturb lead-containing material or presumed lead containing material must protect their employees from airborne lead exposure in compliance with the OSHA Lead Standard 29 CFR 1926.62 (Michigan Part 603). In accordance with OSHA, Contractors must protect their own employees with personal protective equipment, training, and medical surveillance. Contractors conducting lead work on multi-contractor sites must also inform all site workers of potential exposure to lead.

MSU employees must also be protected, regardless of job title, from lead exposures according to the OSHA General Industry Standard 29 CFR 1910.1025 (Michigan Part 310). Protecting these individuals from lead exposure will be accomplished by making sure the Contractor contains all airborne lead to the work site by using appropriate work practice controls and meeting the minimum performance criteria listed below.

7.0 WORK CATEGORIES

Projects involving lead can be categorized according to the tasks performed. In order to ensure the appropriate measure will be taken to protect all individuals at MSU, all projects must be categorized by the department managing the work prior to initiation. Use the following tasks described below to categorize the work being conducted. Recommended minimum work practice controls can be found in section 14.

Level 0

- Tasks conducted with lead containing material that are not anticipated to create dust or debris and are not listed as Level 1, 2 or 3 Tasks
- Manual demolition of lead containing materials or coatings below 0.06% lead by weight.

Level 1

Example tasks may include, but are not limited to:

- Spray painting with lead-based paint
- Manual demolition of lead containing materials or coatings greater than 0.06% lead by weight.
- Manual scraping or sanding of lead containing materials or coatings
- Use of a heat gun on lead containing materials or coatings
- Power tool disturbance of lead containing materials or coatings with a dust collection system

Level 2

Example tasks may include, but are not limited to:

- Using lead-containing mortar

- Lead burning
- Rivet busting on lead containing materials or coatings
- Power tool disturbance of lead containing materials or coatings without a dust collection system
- Clean-up of dry expendable abrasives used to remove a lead containing coating

Level 3

Example tasks may include, but are not limited to:

- Abrasive blasting on lead containing materials or coatings
- Welding on lead containing materials or coatings
- Cutting on lead containing materials or coatings
- Torch burning on lead containing materials or coatings
- Large Scale Demolition of lead containing materials or coatings

8.0 PROJECT NOTIFICATION

Prior to the initiation of any interior or exterior work involving lead containing or presumed lead containing material by an outside contractor, the department managing the work must provide EHS with an Initial Lead Project Notification. The initial notification must contain the general scope of work to be done, dates for the start and proposed completion of the work, and the precautions which will be employed to protect building occupants. The University Department Managing the work must complete and submit the form, 15 days prior to the start of the project. This form can be found in Appendix 1.

9.0 NOTIFICATION TO BUILDING OCCUPANTS

Prior to the initiation of any interior or exterior work involving lead containing or presumed lead containing material, the Physical Plant will forward an informational memo to all appropriate persons on the building contact directory list located in the building that lead work is conducted. This memo will contain the general scope of work to be done, dates for the start and proposed completion of the work, and the precautions which will be employed to protect building occupants.

10.0 TRAINING

All MSU employees that are anticipated to enter a lead work-site which may result in an occupational lead exposure must receive a Lead Training in accordance with 29 CFR 1926.62(L)(2). Lead training shall be conducted annually by EHS and will consist of the following:

- The specific nature of the operations which could result in exposure to lead above the action level

- The purpose, proper selection, fitting, use and limitations of respirators
- The purpose and description of the medical surveillance and medical removal programs, including health effects of lead exposure and potential reproductive consequences
- The contents of this compliance plan.
- Instruction that chelating agents should not be used unless under the direction of a licensed physician.
- Explanation of engineering controls and work practices for lead-related work
- The employee's right of access to records

11.0 PERFORMANCE CRITERIA FOR CONTRACTORS

Minimum Performance Criteria have been established for outside contractors conducting lead related work to ensure that no University employee is exposed above the OSHA Action Level of 30ug/m³ of airborne lead or has the potential to come into contact with lead dust as a result of contractor's activities. At a minimum, Contractor disturbing lead related materials must meet the following requirements.

- Possess, at a minimum, 2 years of experience with lead related work.
- Limit access to worksites in which Level 1, 2 and 3 tasks are taking place to trained and authorized personnel only.
- Adequately limit all migration of lead containing dust and debris to any areas outside the worksite.
- Ensure that MSU employees not associated with the worksite are not exposed to lead levels above the OSHA action Level.
- Prevent the contamination of MSU property (i.e., computers, chairs, desks, carpet, floors, walls, etc.) from lead dust and debris.
- Collect and manage hazardous wastes produced in accordance with ORCBS hazardous waste requirements.
- Ensure that workers contaminated with lead containing dust and debris do not transfer that material outside the worksite

The University department managing the work will ensure airborne lead and dust is contained to the worksite by conducting or contracting for approved third party Area Air

Monitoring and Clearance Dust Wipe Sampling (information on Area Air Monitoring and Clearance Dust Wipe Sampling can be found in Sections 15 and 16).

Note: MSU employees designated to conduct lead related work will be protected in accordance with the OSHA Lead in Construction Standards 29 CFR 1926.62.

12.0 CONTRACTORS LEAD COMPLIANCE PLAN

OSHA requires contractors that employ workers occupationally exposed to lead establish and implement a Lead Compliance Plan. The Lead Compliance Plan shall be prepared by the Contractor, as required by the OSHA Standard (29 CFR 1926.62) and submitted to the department managing the work and EHS. The document must include the following:

- Description of each activity in which lead containing, or presumed lead containing material is disturbed (i.e., equipment used, material involved and % Pb, controls in place, operating procedures, crew size and corresponding employee job responsibilities).
- Work Practice Controls to be used to prevent lead contamination from occurring outside the work-site.
- Regular inspections of the work-site and equipment by a competent person named by the Contractor.
- A description of arrangements made among Contractors on multi-contractor sites to inform workers of potential exposure to lead and their responsibility to comply with the OSHA Lead in Construction Standard 29 CFR 1926.62.
- Proof of appropriate Lead Training for each employee on-site.
- Proof of appropriate written respirator program and compliance under 29 CFR 1910.134.
- Certification that the Contractor has read understands and will abide by the minimum performance standards required in this Program for controlling lead hazards.

13.0 SIGNAGE

The Contractor conducting lead work shall post warning signs outside any entrance to the worksite in accordance with the OSHA standard below.

1926.62(m)(2)(i) The employer shall post the following warning signs in each work area where an employees exposure to lead is above the PEL.

**WARNING:
LEAD WORK AREA
POISON
NO SMOKING OR EATING**

1926.62(m)(2)(ii) The employer shall assure that signs required by this paragraph are illuminated and cleaned as necessary so that the legend is readily visible.

Additionally all lead work areas, regardless of airborne lead concentrations, shall post the following information on a sign. An example of this sign can be found in appendix 2.

**WARNING
LEAD WORK AREA
NO EMPLOYEE PERMITTED ENTRANCE
WITHOUT PROOF OF LEAD AWARENESS TRAINING
MUST WEAR APPROPRIATE
PERSONAL PROTECTIVE EQUIPMENT
for further information, please contact:
(Project Manger) at (Phone #)**

The department managing lead work shall ensure that signs are posted and maintained appropriately.

14.0 RECOMMENDED MINIMUM WORK PRACTICE CONTROLS

Recommended work practices have been developed for lead related work conducted at MSU. Work involving lead-containing material must be well planned out to avoid worker and occupant exposure. The following work practices are recommended for meeting the performance criteria listed in the Requirements of Contractors Section of this Program.

Level 0 Tasks

Recommended work practices for Level 0 Tasks performed on confirmed lead containing material or presumed lead containing material include:

- Use care to minimize the production of dust and debris.
- Visually inspect area for any debris/dust resulting from work conducted. Remove any debris/dust from area using a HEPA filtered vacuum. All vacuums used in a lead worksite must have a minimum filter efficiency of 99.9% (HEPA).
- The contents of the HEPA vacuum shall be tested to determine if the material is a “hazardous waste”. All contents of the HEPA vacuum shall be adequately labeled

and stored secondary container provided by the contractor in accordance with all State and Federal rules, and MSU Procedures.

Level 1 Tasks

Recommended work practices for Level 1 Tasks include:

- For work occurring in occupied areas (i.e., office, cafeteria, gym, dormitory, apartments, study room, labs) the work area should be enclosed with, minimally, 6 mil plastic in a manner that prevents transfer of dust outside the work area. Remove all movable objects (desk, chairs, and books) within the enclosed work area. Non-movable objects should be securely covered with 6-mil plastic sheeting, as to prevent lead dust contamination. MSU employee entry to the work area will be limited to those individuals with documented Lead Awareness Training.
- For work occurring in unoccupied areas (i.e., hallway, stairwell, foyers, mechanical spaces, etc) prepare work area by placing 6mil plastic sheeting a minimum of six (6) feet horizontally out in all directions from the work area. Adequately secure plastic to ensure all debris and dust is collected on plastic.
- Cover all air vents with in the work area.
- Use care to minimize the production of dust from scraping or sanding. Use either wet sanding/scraping or HEPA filtration fitted equipment.
- After disturbance work is completed a HEPA vacuum should be used to remove any small debris and visible dust from interior/exterior surfaces and plastic sheeting.
- Visually inspect area for any debris resulting from work conducted. Remove any debris from area.

Level 2 and 3 Tasks

Recommended interior work practice controls for Level 2 and 3 Tasks include:

- Lead dust/debris shall be contained to the work area by sealing all doors, windows, and air vents with 6-mil plastic sheeting. This may require turning off localized HVAC systems.
- The entrance to the work area should be equipped with an adequate air lock constructed of 6 mil plastic sheeting at a minimum. The air lock must control any dust migration or transfer out of the controlled work area.

- An enclosed clean change area must be provided prior to the entrance of the work area. The area must provide a place to remove and dispose of disposable coveralls, and provide for clean storage of new disposable coveralls.
- Disposable coveralls must be donned prior to entering the work-site and contaminated coveralls must be doffed prior to exiting the work-site.
- Entry to the work area will be limited to workers with documented Lead Awareness Training.
- All furniture that cannot be removed from the work area should be covered in 6-mil plastic sheeting in a manner which provides protection from lead dust contamination.
- Place a minimum of 6-mil plastic sheeting on all finished floors in the work area, and tape all seams as necessary. The contractor must notify the Department Managing the work if plastic sheeting is not appropriate for floor application and provide an alternative floor protection control method.
- Mechanical ventilation may not be used, unless resulting exhaust outside the work area is equipped with HEPA filtration and the termination of the exhaust is monitored in accordance with Section 15 of this Program.
- Barrier tape will be used to isolate the work area in such a way that staff, students, and the public can not get within 10 ft of the work area.
- A warning sign should be posted outside any unsecured entry to the work site. Refer to the Signage Section of this Program (Section 13).
- Daily clean-up of the worksite will include removal of debris (with the exception of contaminated plastic sheeting) and disposal of protective clothing.
- After lead project work is completed, a HEPA vacuum should be used to remove any small debris and visible dust from all surfaces. After visible debris is removed from the plastic sheeting, it should be rolled inward and placed in a “hazardous” waste container, along with all disposable clothing. All “hazardous” waste shall be adequately labeled and stored in accordance with all Local, State, and Federal rules and in accordance with University Procedures.
- In situations where work is complete, but plastic sheeting was not used on the floor, a HEPA vacuum should be used to remove any small debris and visible dust, followed by a wet mopping with lead specific detergent of the entire floor. All liquid waste must be treated as “hazardous” until otherwise determined by analysis and characterization.

- The work area may not be released for general use or occupancy until clearance wipe samples are collected and results reviewed and approved by EHS. Information on Clearance Criteria and associated sampling can be found in Section 16 of this Program.

Recommended exterior work practices for Level 2 and 3 Tasks include:

- Building occupants shall be notified to close windows and doors within 20 feet of work area until work is complete.
- Controls shall be in place to eliminate contaminating HVAC systems and air intakes that have the potential to draw in air from the work-site. Control methods must be submitted to EHS for review and approval.
- Capture all lead containing material and presumed lead containing material to prevent contamination of the surrounding environment (i.e. secure one layer of 6-mil plastic on the ground extending 10 feet beyond the perimeter of the work-site).
- Erect temporary fencing or barrier tape at a 20 foot perimeter around work-site.
- Daily clean-up of the worksite will include removal of debris, plastic sheeting, and disposal of coveralls. All “hazardous” waste shall be adequately labeled and stored in accordance with all Local, State, and Federal rules and in accordance with University Procedures.
- Keep all hazardous waste in a secure indoor area until disposal

15.0 SAMPLING

MSU requires all lead sampling to be conducted by qualified individuals, consultants, and labs. Additionally, all laboratory analysis of bulk, air, and wipe samples must be conducted by an AIHA approved lead laboratory.

EHS has reviewed the following company Statement of Qualifications and has determined their laboratory accreditation meets the minimum qualifications. These labs provide an analysis service for a fee and all associated costs will be the responsibility of the department managing the work. The EHS approved labs are as follows:

Accurate Analytical Testing Belleville, MI (734) 699-5227	Bureau Veritas North America Novi, MI (248) 344-2652	Corrosion Control Consultants Kentwood, MI (616) 940-3112
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15.0 (A) BULK SAMPLING FOR LEAD IDENTIFICATION

The department managing the work may decide to conduct lead identification sampling to determine if a presumed lead containing material contains lead and requires lead management. The only method currently recognized is bulk sampling for laboratory analysis. Sampling may only be conducted by a qualified MSU employee or an approved consulting firm.

At a minimum, a qualified person conducting lead identification sampling will:

- Have previous bulk sampling for lab analysis experience.
- Have a working understanding of the National Institutes for Occupational Safety and Health (NIOSH) sampling methodologies.
- Capable of determining appropriate sampling methodologies documenting and submitting a “representative” sampling plan.

At a minimum, Lead Identification Sampling must provide the following:

- Sampling must be representative of the material selected. One sample is needed for each homogenous (same color and substrate) component and each individual component must be sampled separately. For example, if a door is painted 2 different colors, a sample is needed for each color, or if a wall is half plaster and half drywall, a sample is need for each substrate.
- A collection of all paint layers from the substrate, and minimize the collection of actual substrate.
- A record of the component, substrate, color, and location for each sample taken.
- Sampling results must be provided to the Department Managing the work and EHS.

15.0 (B) AIR SAMPLING

The department managing the work must provide air sampling for all tasks involving lead containing materials or presumed lead containing materials, in which abrasive blasting is conducted, large scale demolition takes place, or HEPA equipped ventilation is exhausted outside the work-site. Sampling may only be conducted by a qualified individual(s). For a list of EHS approved sampling consultants, see Appendix 3.

At a minimum, a qualified person conducting air sampling will:

- Have previous air sampling experience and work under the supervision of an Industrial Hygiene Professional.
- Possess the ability to calibrate and maintain all air sampling equipment

- Have an understanding of the National Institutes for Occupational Safety and Health (NIOSH) sampling methodologies.
- Have the ability to answer questions on sampling procedures, laboratory results, and or, instrument readings.

At a minimum, Air Sampling must provide the following:

- A personal breathing zone sample of a worker performing the lead removal operations.
- One air sample which represents an area outside the worksite, no more than 3 feet from the entrance.
- One air sample at the termination of any mechanical ventilation device used in the work-site which is exhausted outside of the worksite.
- One sample that represents the closest occupied area, or adjacent public space.
- Area air sampling must be conducted for every shift HEPA equipped ventilation is used or abrasive blasting is conducted.
- Analytical results of air samples must be provided by an American Industrial Hygiene Association accredited lab within 24 hours of sample collection.
- Air sample results must be provided to EHS daily. EHS will review all air sample results and contact the department managing the work the next business day if results are at or above $30\mu\text{g}/\text{m}^3$. The results must contain the date, time, duration, associated room number, and a floor plan drawing that identifies sample location.

An area air sample result at, or above $30\mu\text{g}/\text{m}^3$, for any shift, will be considered a breach in dust containment. All surfaces represented in the area sample are considered to be contaminated with lead dust and represent an exposure potential for future or existing building occupants. Work must be stopped immediately and the following must occur:

- The affected area must be HEPA vacuumed, removing all visible dust from all affected surfaces.
- Clearance Dust Sampling must be conducted to ensure lead dust was removed. A re-clean of the area will be required until the University Clearance Criteria is met. Information on Clearance Dust Sampling is provided below.

15.0 (C) CLEARANCE DUST WIPE SAMPLING

The University department conducting the work must provide Clearance Dust Wipe Sampling at the completion of the Level 2 and 3 tasks in which more than 2 square feet of a lead containing material is impacted. Results of the sampling will determine if the worksite is free of lead dust contamination and if the worksite can be opened for unrestricted access. Sampling will also provide confirmation that an area that was accidentally contaminated was sufficiently cleaned. Sampling may only be conducted by a qualified individual(s). For a list of EHS Approved Sampling Consultants, See Appendix 3.

At a minimum, a qualified person conducting clearance sampling will:

- Have previous sampling experience and work under the supervision of an Industrial Hygiene Professional.
- Have the ability to answer questions on sampling procedures and laboratory results.
- Be completely independent of the contractor conducting the lead work.

In target housing (University Apartments) and child occupied facilities, the person conducting clearance sampling must possess EPA Lead Inspector or Risk Assessor certification from the Michigan Department of Community Health (MDCH).

At a minimum, Clearance Dust Wipe Sampling must provide the following:

- One representative floor dust wipe sample per room, or per every 1000 square foot of floor space for rooms over 1000 square foot in size. Sample locations will represent the areas that have the highest potential for contamination with in the work-site, or areas that have been identified as contaminated.
- One dust wipe sample for every hand contact surface located in the work site, or hand contact surfaces that have been identified as contaminated.
- Clearance dust wipe samples shall be collected no sooner than one hour from the completion of work. Samples collected within an hour of the completion of work will not be considered accurate representations of actual conditions in the work area.
- Clearance dust wipe sampling shall be conducted after the worksite is HEPA vacuumed by the Contractor and all visible dust is removed and prior to use or occupancy.
- Analytical results of dust wipe samples must be provided by an American Industrial Hygiene Association accredited lab.

- Clearance dust wipe sample results must be provided to EHS for review. EHS will notify The University department managing the work the next business day if area testing results meets the Clearance Criteria, and or, the space can be released for unrestricted access. University Clearance Criteria is listed below.

Dust Wipe Clearance Criteria

Surface	Clearance Criteria
All interior surfaces (eg., floors, stair treads, window sills)	100 ug/ft ²
All exterior horizontal surfaces extending 20-feet from work-site up to a height of 6-feet (eg., stairs, pavement, concrete, window sills)	400 ug/ft ²

The University department or contractor conducting lead work on campus shall be responsible for returning the work area to below the appropriate clearance level. In settings where baseline samples show existing lead concentrations above the clearance level, the contractor must clean the work area to the baseline level or below. If baseline data is used as clearance criteria, the department or contractor must contact EHS BEFORE work is conducted to request baseline wipe sampling. Failure to contact EHS before work is started will require use of the listed clearance limits.

Clearance dust wipe sample results above the Clearance Criteria represent surface lead contamination. Any areas that contain surface contamination must remain a restricted lead worksite, until a re-clean is completed and clearance dust wipes are collected by a third-party Sampling Technician and results reviewed for approval by EHS.

When submitting result to EHS, please attach all results to a completed Sample Result Notification Form located in Attachment C.

Note: Clearance Criteria for lead contamination in “Target Housing” or Child-Occupied Facilities must meet requirements listed in the US Department of Housing and Urban Development (HUD), “Guidelines for the Control of Lead-Based Paint Hazards in Housing.”

17.0 LEAD WASTE

There are comprehensive federal, state and local regulations for the management of hazardous waste. These rules apply to all University personnel; from those who initially generate the hazardous waste to those who arrange for waste disposal. The University is regulated as a hazardous waste generator. Strict regulatory requirements apply to labeling, handling, storing and disposing of hazardous wastes.

In order to remain compliant with the Resource Conservation and Recovery Act (RCRA) solid waste must be reviewed to determine if it is a regulated waste. In the case of construction debris, there is a potential for lead contamination from lead based paint. Any waste which leaches lead at a rate of 5 parts per million or greater is considered to be a hazardous waste.

University has determined that there are four types of lead contaminated waste which may be created as a result of maintenance and construction operations. These four types are:

1. Dust – Any material with a surface area of less than 2 square inches, to include, but not limited to, paint scrapings, small bits of construction debris, and dust from drilling, sanding, cutting, etc.
2. Debris – Any material with a surface area greater than or equal to 2 square inches in size, to include, but not limited to, Personal Protective Equipment (PPE), rags, wood, construction debris, paper, plastic, Scrap Metal which is not sent for recycling, etc.
3. Water – Waste water from processes involving the removal of lead based paint or lead contaminated debris, to include, but not limited to, mop water, rinse water, etc.
4. Scrap Metal – Any painted metal which is being discarded as a waste, and can be sent to a metal recycling facility, to include, but not limited to, railings, stairs, shutters, doors, etc.

Waste Sampling

Many wastes which are or have the potential to be contaminated with lead must be sampled by an approved Third Party Sampling Technician or by a qualified University employee and be submitted for testing to an EPA accredited lab for Toxicity Characteristic Leaching Procedure (TCLP) analysis. For the purposes of this program, the University will require testing and analytical for all Water, and Debris, and for *large volumes of Dust on a case by case basis. Scrap Metal sent for recycling is not required to be tested due to the University's use of the Scrap Metal Exemption presented under 6NYCRR Part 371.1(c)(7).

***Note:** Due to the cost of analytical it does not make sense to analyze insignificant amounts of material. Any small (less than 5 pounds) quantities of dust should be automatically managed as a hazardous waste and disposed of accordingly.

EHS requires that the department managing the work use an approved laboratory for sampling and analytical of the waste material. The lab provides a sampling service for a fee and all associated cost will be the responsibility of the department managing the work. The EHS approved sampling consultants can be found in Appendix 3.

- A proper sample must be representative of the waste. Proper sampling protocol will be ensured if employing the approved laboratory to sample and analyze the material. If the department managing the work chooses not to employ an approved laboratory, a sampling protocol must be submitted to the EHS for approval, five business days in advance of sampling.

EHS recommends that a representative waste sample be taken and results submitted to EHS prior to waste generation. By making a waste determination before work starts, the Contractor and the department managing the work can make the appropriate arrangements for storage and disposal of the waste in advance.

Waste Determination

Once the analytical results are received, a hazardous waste determination must be made by the contractor. The department managing the work must submit a copy of sample results for review by EHS. Waste may only be removed from the worksite after EHS has made a waste determination, based on the analytical results.

Once materials are deemed to be a hazardous waste they must be managed as such.

If the material is determined by EHS to be non-hazardous it may be treated as a Municipal Solid Waste, Construction Debris, or Scrap Metal and can be managed and removed by the contractor. The material can not be determined to be non-hazardous until the EHS receives and reviews a copy of the analytical for review and notification of determination is given to the Waste Coordinator (see description below). Only then can the material sampled be treated as non-hazardous.



Initial Lead Project Notification

MSU Building _____ / # _____ Floor _____ Room _____

Building Contact _____ No. _____

Project Representative _____ No. _____

General Contractor _____ No. _____

Scope of Work (Including Engineering Controls): _____

Start Date ___/___/___ End Date ___/___/___ Hours ___:___ to ___:___

Baseline Wipe Samples Requested yes___ no___

Presumed Lead Containing Material Tested? yes___ no___

If yes, who tested the material and what were the results:

Fax Completed Form to EHS at (517) 432-6686 at least 15 days before start

MSU-EHS USE ONLY

DRed _____	DAcc _____	BN _____
C _____		

FU _____	SW _____	DT _____ / _____

APPENDIX 2 – ON CAMPUS LEAD WORK SIGN

Please contact EHS at 517-353-8956 for these signs. They must be used on all lead projects on campus.

The following yellow sign must appear at the worksite any time lead work is conducted.



When conducting an initial exposure assessment or work is above the PEL, the following orange sign must be displayed:



APPENDIX 3 – APPROVED SAMPLING CONSULTANTS

EHS has reviewed the following companies Statement of Qualifications and has determined their Sampling Staff meets the minimum qualifications listed above. The consultant provides a sampling service for a fee and all associated cost will be the responsibility of the department managing the work. The EHS approved consultants are as follows:

Materials Testing Consultants Inc.
693 Plymouth Ave Ne
Grand Rapids, MI 49505 Map
(231) 922-7111

Analytical Testing & Consulting
Services Inc.
14625 Doster Rd
Plainwell, MI 49080
(877) 503-4877

A Tc Associates Inc.
4519 Broadmoor Ave Se
Grand Rapids, MI 49512 Map
(616) 698-3131

Apex Environmental Services Inc.
33114 Warren Rd
Westland, MI 48185 (734) 422-5500
Delisle Associates Ltd.
5050 S Sprinkle Rd
Portage, MI 49002
(269) 373-4500

Fibertec Industrial Hygiene Services
1914 Holloway Dr
Holt, MI 48842 Map
(517) 699-0345

Environmental Consulting & Inspection
Services
10615 Vanderhagen Rd
Ironwood, MI 49938
(906) 932-3006

A A A Lead Inspections
15 Park St
Saugatuck, MI 49453
(616) 364-9200

Environmental Testing & Consulting
Inc.
38900 Huron River Drive
Romulus, MI 48174
(734) 955-6600

A Rm Industrial & Environmental
Consultants
202 S Michigan Ave
Big Rapids, MI 49307
(231) 592-9858

Tech Environmental
19500 Middlebelt Rd
Livonia, MI 48152 Map
(248) 426-7600

Acm Engineering & Environmental
Services
Serving the MI Area (800) 234-8435
26598 Us Highway 20
South Bend, IN 46628
(574) 234-8435

Materials Testing Consultants Inc.
693 Plymouth Ave Ne
Grand Rapids, MI 49505 Map
(231) 922-7111

Probe Environmental Inc.
4470 Jackson Rd
Ann Arbor, MI 48103 Map
(734) 663-4423

Villa Environmental Consultants Inc.
408 W Main St
Benton Harbor, MI 49022
(269) 927-2434

Andrew D. Smith
Michigan State University
132C Physical Plant
East Lansing, MI 48824-1215
Phone:(517) 432-0211
e-mail: adsmith@pplant.msu.edu

Zach Hansmann
Michigan State University
150 Giltner Hall
East Lansing, MI 48824-1101
Phone (517) 353-8956
e-mail: Hansmann@msu.edu